AMENDMENTS TO THE SPECIFICATION

1. Please amend the Abstract by inserting the following replacement paragraph:

A direct resistance measurement probe for measuring corrosion levels and material loss. **The probe comprises** ~~includes~~ a hollow body[[,]] **having** a resistive element ~~having~~ **at** one **end that is** ~~surface~~ exposed to the environment[[,]]. **The probe can have** an internal or external power source **that is** electrically connected to the resistive element[[,]]. **A** ~~a~~ meter ~~for~~ measur**es**[[ing]] the electrical resistance of the resistive element **providing data from which corrosion rates may be ascertained.**[[,]] **A** [[a]] temperature sensing device ~~for~~ measur**es**[[ing]] the temperature of the resistive element.[[;]] ~~an optional~~ **A pressure sensing** device ~~for~~ measur**es**[[ing]] **the** pressure **of the environment that the resistive element is subjected to.**~~; a memory for storing resistance and temperature data; and control means for applying an electric current across the resistive element, receiving the output data of the resistance meter, receiving the output data of the temperature sensing device, and storing said data into the memory.~~ The probe does not use a comparative or ratiometric reference element.

2. Please amend the Detailed Description by inserting the following replacement paragraphs:

[0037] The probe (10) has an electrical power source that may be an internal battery (22) as shown in Figure 1 ~~[[2]]~~, or an external power supply. If an internal power source is used, the power source must be sufficiently small enough to be contained within the probe (10). A suitable internal power source may be a lithium-ion battery, however other suitable internal electrical power sources known in the art may also be utilized. The internal power source may be rechargeable or replaceable. In one embodiment the probe (10) may be powered by an external power source connected to a power connection (62) on the probe (10) as depicted in Figure 4. Power from the external power source may be conducted to the probe (10) by means of an ordinary wire. Although power sources of varying magnitudes may be used, voltages will typically be less than six volts with currents of three amperes, or less.

[0039] The probe (10) also has a temperature sensing device (30). The temperature sensing device (30) may be a thermocouple, and is preferably disposed immediately adjacent to the unexposed surface of the CME (28). The temperature sensor (30) provides a temperature reading of the CME (28) at the time that its resistivity is measured. The temperature reading is required if compensation for thermal expansion (or lack thereof) of the CME (28) is to be calculated as discussed above. The probe may also have a pressure sensor (32) that is exposed to the environment in a position proximate to the CME (28). The pressure sensor (32) provides a pressure reading of the environment at the time that the resistivity is of the CME (28) is measured. The pressure level of the environment is a variable that can be accounted for in the metal loss calculations. As shown in Figure 3 ~~[[4]]~~, the probe (10) has a temperature measurement module (53) and a pressure measurement module (54) connected to the temperature sensing device (30) and the pressure sensor (32). This module is capable of simultaneously reading the temperature of the CME (28) from the temperature sensing device (30) and of reading the pressure of the environment from the pressure sensor (32) at the time that the resistivity of the CME (28) is being measured.

[0046] As shown in Figure 4, in another embodiment, a monitoring assembly may be designed to facilitate the use of the probe (10) in the downhole environment in oil and gas wells. The down hole assembly is comprised of a hollow carrier (60) that is sized to provide the same flow cross section as the production tubing while the outside diameter is sized to ensure clearance for the well casing. Both ends of the hollow carrier (60) may be threaded to facilitate insertion into the production tubing. The probe (10) is securely inserted into an opening (64) in the carrier walls such that one surface of the resistive element is exposed to the interior of the hollow carrier (60). The hollow carrier (60) has an electronics receptacle (~~59~~ 62) adjacent to the opening (60). An external connector (65) is mounted in the electronics receptacle (62) and is connected to the probe (10). The

probe electronics in the probe (10) and the connections to the external connector may be encased in an epoxy and secured to the hollow carrier (60) with a carrier lock having a spring pin locking mechanism (not shown). The probe electronics may be connected to the surface of the well by means of a wire or cable that runs from the external connector (65) through a wire channel hollow carrier (66) and up the exterior surface of the production tubing to the surface.